



Please Attempt All Questions?

Full Mark is 50 Degrees?

Q 1 (6marks): Draw a detailed block diagram of the following items:

1. Data acquisition system diagram.
2. Experiment diagram.
3. Data transmission system diagram.

Q 2(16 marks): Write down the short notes for the following items:

1. Error analysis.
2. Markov matrix (second order).
3. Objectives of encoding before transmission.
4. Types of compression with techniques.
5. Remarks on information generation.
6. General approaches to solve problem requiring probability.
7. Bernoulli trials.
8. Hyper-geometric distribution.
9. Likelihood definition.
10. Three main notions of randomness.
11. Ergodic process definition.
12. Noise laws.

Q. 3 (18marks): Briefly Explain the following items

1. How to calculate bits' number of information by (Shannon-Hartly-bits).
2. Repetition code.
3. Set theory.
4. Generalized union.
5. Markov chains.
6. Random walks.

Q 4 (10marks):

1. Using Huffman Binary coding: Drive code for DNA distribution (A T A A C C G A T G G C)
2. Using Hamming code on original message "1 0 1 0"
 - Find Transmission message.
 - Check and correct message if received message is "1 1 1 0 0 1 1"

With All Best Regards